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CONTENTS:

Hebard—The Genus <i>Hygronemobius</i> , with the Description of One New Species (Orthop., Gryllidae).....	193
Cresson—A new Genus and some new Species Belonging to the Dipterous Family Bombyliidae.....	200
Bishopp—Data Wanted on the Screw Worm Fly (Dip.).....	207
Washburn—The Cotton Worm Moth in Minnesota (Lep.).....	207
Parshley—On the External Anatomy of <i>Adelphocoris rapidus</i> Say, with Reference to the Taxonomy of the Miridae or Capsidae (Hemip.)....	208
Dunn—Observations on the Preoviposition, Oviposition and Incubation Periods of <i>Dermacentor nitens</i> in Panama (Arach., Acar.).....	214
Girault—Fragments on North American Insects—IX (Hym., Dip., Aran., Hem., Lep., Col.).....	219
Editorial—The International Entomological Congress.....	228
Entomological Literature.....	229
Review of Brues and Melander: Key to the Families of North American Insects.....	233
Review of Riley and Johannsen: Handbook of Medical Entomology.....	234
Doings of Societies—English and German Entomological Societies and the War.....	236
Chicago Entomological Club (Lep., Coleop.).....	236
Feldman Collecting Social (Lepid., Coleop.).....	237
American Entomological Society (Odon., Orthop., Lepid.).....	238
Obituary—Ferdinand Kowarz.....	240
“ Dr. Filip Trybom.....	240
“ Dr. Walter Stendell.....	240
“ Dr. Otto Kirchhoffer.....	240
“ v. Rothkirch und Panthen..	240
“ Dr. W. Haas.....	240
“ Dr. F. Vogel.....	240

The Genus *Hygronemobius*, with the Description of One New Species (Orthop., Gryllidae).

By MORGAN HEBARD, Philadelphia, Pa.

(Plate VI.)

In studying series of South American Gryllidae, we find that the majority of forms of diminutive size and abbreviate tegmina described as members of the genus *Nemobius* belong instead to the present genus.¹ Those of which we have material are treated below; in addition to these we find that *Nemobius basalis* of F. Walker² is described as having 3 spines on the dorsal margins of the caudal tibiae and, in consequence, almost certainly belongs to the present genus. *Hygronemobius* has 3 and 3 spines on the dorsal margins of the caudal tibiae, the distal spurs numbering 3 external and 2 internal; *Nemobius* has 4 and 4 spines and 3 pairs of distal spurs. These

1. *Hygronemobius* Hebard, Ent. News, XXIV, p. 451. (1913). [*♂* of *H. allei* figured.]

2. Catal. Dermapt. Saltat. Br. Mus., I, p. 58. (1869). [*♀*, Pará, Brazil.]

features are constant in these genera, but have been almost entirely overlooked in the past. It is, in consequence, impossible for us to place with certainty *Nemobius araucanus*³ and *nemoralis*⁴ of Saussure, though, from the tegminal and other described characters, we believe that examination of the types will prove them to be members of *Hygronemobius*.

KEY TO THE SPECIES OF HYGRONEMOBIUS.

A. Size large (length of body given as 10 mm.)..*basalis* (F. Walker)

AA. Size small, form compact, head and pronotum stout, wings absent.

B. Maxillary palpi dark. General color dark brown, maculate with a still darker shade.

C. Dorso-internal spur of caudal tibia equalling metatarsus in length. Tegmina: ♂, covering $\frac{2}{3}$ of abdomen; ♀, minute lateral pads almost entirely concealed by pronotum. Ovipositor with dorsal margin of apex finely serrulate *alleni* (Morse)

CC. Dorso-internal spur of caudal tibia reaching $\frac{4}{5}$ of distance to distal extremity of metatarsus. Tegmina: ♂, covering all but apex of abdomen; ♀, very small lateral pads. Ovipositor with apex unarmed.....*liura* new species

BB. Maxillary palpi white, with apex of last joint broadly, and ventral margin of same narrowly, marked with black. General color pale brownish maculate with a darker shade. [Tegmina: ♂, covering $\frac{2}{3}$ of abdomen, sharply and transversely truncate; ♀, squamiform, lateral, from Saussure]. Dorso-internal spur of caudal tibia reaching about $\frac{3}{4}$ of distance to distal extremity of metatarsus.....*dissimilis* (Saussure)

AAA. Size very small, form delicate, head and pronotum proportionately small, wings very elongate. (Maxillary palpi white. Dorso-internal spur of caudal tibia reaching about $\frac{2}{3}$ of distance to distal extremity of metatarsus, these members all very delicate. Tegmina: ♂, sharply truncate but broadly rounded; ♀, truncate, with greatest production weakly indicated at sutural margin. Ovipositor with apex unarmed. General coloration sooty, with paler portions brownish; wings whitish when in repose; in general appearance not nearly as maculate as any of the other species.)

albipalpus (Saussure)

Of the four species before us, *alleni* and *liura* appear to be the most nearly related, though showing the widest difference

3. Miss. Sci. Mex., Rech. Zool., VI, p. 388. (1874).

4. Miss. Sci. Mex., Rech. Zool., VI, p. 390. (1874).

in the ovipositor; *dissimilis* shows a general resemblance to these in form, while *albipalpus* is very distinctive in size, form and general coloration, showing, in fact, a decidedly closer general superficial resemblance to one species of South American *Cyrtoxipha* (*guyennensis* Saussure).

When compared with *Nemobius*, the species of the present genus show other differences besides those of the armament of the caudal femora; in the greatly reduced apical area of the male tegmina and the greater divergence of the two axillary veins; in the wholly absent or very greatly reduced tegmina in the females of several species, and in the ovipositor, which in some of the species is wholly unarmed.

But one species, *Hygronemobius alleni*, genotype, is known from within the boundaries of the United States, having been recently found by us in extreme southern Florida.

***Hygronemobius alleni* (Morse).**

1905. *Nemobius alleni* Morse, Psyche, XII, p. 21. [2♂, 2♀, Moraine Cay, Bahamas.]

Nearest in relationship to *H. liura*, the present species may be readily separated, particularly in the female sex, by the characters given in the accompanying key. The original description is excellent but the minute lateral tegmina of the female were unfortunately overlooked.⁵

In addition to that portion of the typical series which has not been destroyed, we have had before us the following series, found on the black soil and among drift in a mangrove swamp near Miami, Florida. At high tide this area was under more than a foot of water. The series was taken when the tide was out, after long and laborious search; at the time the weather was cool and the individuals were not rapid in their movements, but were difficult to capture owing to the environment, their sombre coloration and their habit of hiding under the drift or the sodden mangrove leaves. About the same time, however, a species of *Nemobius* was found in a similar

5. At the time the generic description was written, both adult females of the typical series had been destroyed and it was then supposed that the description of this sex was based on specimens in the instar preceding maturity.

mangrove swamp, where individuals sprang about with astounding rapidity. Several other mangrove swamps about the shores of Biscayne Bay were carefully examined without a trace of the present species being found.

Miami, Florida, March 15 and 16, 1915 (M. Hebard), 1 ♂, 7 ♀, 6 juv. ♂, 4 juv. ♀ [Hebard Cln.].

*Hygronemobius liura*⁶ new species.

TYPE: ♂; Tukeit, British Guiana. July 21, 1911. F. E. Lutz. American Museum of Natural History.

Size small; form compact. Head with interantennal protuberance very feeble, more so than in *H. alleni*; maxillary palpi compact, entirely dark. Pronotum much as in *alleni*. Tegmina reaching base of abdomen, distal margin strongly truncate and very briefly but strongly deflexed, veins very weak, cordes and diagonal vein connected at their extremities by a very weak transverse vein, tambourine absent. Wings absent. Caudal face of cephalic tibiae bearing a large elliptical tympanum, corresponding portion of cephalic face not swollen. Caudal femora as given in generic description; the three spines on each of the dorsal margins are however not literally paired but alternating; distal spurs not as long as in *alleni*, dorso-internal spur (longest of the five distal spurs) reaching only four-fifths of the distance to the distal extremity of the metatarsus (in *alleni* this spur equals the metatarsus in length).

Allotype. Same data as type.

Agrees with the types except in the following sexual features. Tegmina greatly aborted, visible portion almost wholly lateral in position (so much so that the tegmina can scarcely be seen from the dorsal aspect), triangular in outline with angle (disto-lateral in position) broadly rounded. Ovipositor subrect; apex with margins unarmed, dorsal margin very weakly subconcave below line of dorsal margin of shaft, ventral margin very weakly convex from proximal swelling to the very sharp apex.

Coloration. ♂. Very dark brown; very weakly punctate and mottled with a paler and more reddish shade, this mottling more evident on the caudal femora. Tegmina glossy and piceous; intermediate channel cream-buff, this marking continued as a rather broad transverse band margining the tegmina distad, a spot of the same color at the base of the free margin of the dorsal field.

6. From *λεία* smooth and *οὐρά* tail. A substantive alluding to the ovipositor difference between this species and the species of nearest relationship, *alleni*.

♀. Head, pronotum and limbs more decidedly marbled with the paler and more reddish brown. Abdomen dark brown, faintly and very widely punctate with a paler shade. Tegmina very dark brown with a buffy marking filling the brief exposed portion of the dorsal field.

MEASUREMENTS (IN MILLIMETERS)

	Length of body	Length of pronotum	Caudal width of pronotum	Length of tegmen	Length of caudal femur	Length of ovipositor
Type, ♂.....	6.8	1.6	1.8	3.1	4.8	....
Allotype ♀....	6.	1.7	1.8	0.6	4.4	3.6

The series before us, in addition to the type and allotype, may be considered paratypic.

Specimens examined, 5; 3 males and 2 females.

Tukeit, British Guiana, VII, 18 to 21, 1911 (F. E. Lutz), 2 ♂, 2 ♀ [Am. Mus. Nat. Hist.].

Rockstone, British Guiana, VII, 9, 1911 (Crampton and Lutz), 1 ♂ [Am. Mus. Nat. Hist.].

Hygronemobius dissimilis (Saussure).

1874. *Nemobius dissimilis* Saussure, Miss. Sci. Mex., Rech. Zool., VI, p. 387. [♂, ♀, Brazil.]

1901. *Nemobius speculi* McNeill, Proc. Wash. Acad. Sci., III, p. 503. [2 ♂ and 20 immature individuals, Tagus Cove, Albemarle Island, Galapagos Islands.]

McNeill's description and figures leave little room for doubt as to the synonymy of his *N. speculi* with the present species. The two adult males described by him agree in all essential details with those before us. That author gives 3 and 3 spines for the margins of the caudal tibiae and 6 spurs, apparently overlooking the absence of the ventro-internal spur, a characteristic of the present genus. The specimens are given as 5 mm. in length.

When compared with *H. alleni* and *H. liura*, the present species is found to be a smaller insect, agreeing in the robust form and nearly quadrate dorsum of the pronotum. It is much paler in general coloration, but the males before us have the lateral lobes of the pronotum broadly banded with blackish

brown with a few scattered dots of the paler general coloration and the lateral field of the tegmina almost entirely piceous; these markings are simply described as brown by Saussure and McNeill, though the latter refers to the dots in the dark portion of the lateral lobes. In other respects our material agrees fully with Saussure's original description, in which unfortunately the number of spines and spurs of the caudal tibiae are not mentioned, though the length of the dorso-internal spur is given.

MEASUREMENTS (IN MILLIMETERS)

	Tagus Cove, Galapagos Ids. <i>Type N. speculii</i> ex McNeill	Petropolis, Brazil.	Brazil. <i>Types, ex Saussure</i>	
	♂	♂	♂	♀
Length of body.....	"5.	5.8-6	"6.5	7.5
Length of pronotum.....	....	1.4	1.6	1.6
Caudal width of same.....	....	1.9	2.	2.5
Length of tegmen.....	2.5	2.8-3.	3.	1.
Length of caudal femur....	4."	4.-4.2	4.	4.4
Length of ovipositor.....	....	.....	....	3.2"

Specimens Examined, 2; 2 males.

Petropolis, Rio de Janeiro, Brazil, IV, 12 to 14, 1913 (M. Burr), 2 ♂ [A. N. S. P.].

Hygronemobius albipalpus (Saussure).

1877. *N[emobius] albipalpus* Saussure, Mélang. Orthopt., II, V fasc., p. 257. [♀ Rio de Janeiro, Brazil.]

This distinctive species, previously known only from the type⁷, is remarkable in its very small size, graceful form, white maxillary palpi, pronotum which narrows decidedly cephalad, dark sooty markings and very long wings (though, as in the other species of the genus, the tegmina are truncate distad and almost wholly lack the anal field in the male sex). The series

7. The material from French Guiana, recorded by Chopard (Ann. Soc. Ent. France, LXXXI, p. 402, 1912), of which he figures a male, belongs not to this species but to a species of *Nemobius*, probably *trinitatis* of Scudder.

before us shows very little variation in either size or coloration.⁸

MEASUREMENTS (IN MILLIMETERS)

	Bartica, British Guiana		Igarapé Assu, Brazil.		Rio de Janeiro, Brazil. <i>Type</i> , ex Saussure
	♂	♀	♂	♀	♀
Length of body.....	5.3	5.-5.4	5.-5.4	5.3-5.4	"5.
Length of pronotum.....	1.2	1.-1.2	1.-1.2	1.1-1.2	1.2
Caudal with of same ⁹	1.7	1.7-1.8	1.5-1.8	1.5-1.9	2.
Length of tegmen.....	2.8	2.6-2.8	3.1-3.3	3.1-3.5	3.8
Length of wing.....	8.3	8.1-9.	8.2-8.3	8.3-8.7	....
Length of caudal femur.....	3.8	3.8-4.1	3.6-3.8	3.5-4.	3.5
Length of ovipositor.....	....	2.4-2.8	.....	2.2-2.8	2.2"

Specimens Examined, 26; 8 males and 18 females.

Bartica, British Guiana, December 19 to 24, 1912 (H. S. Parish), 1 ♂, 4 ♀ [A. N. S. P.].

Igarapé Assu, Pará, Brazil, January 17 to 23, 1912 (H. S. Parish), 7 ♂, 14 ♀ [A. N. S. P.].

EXPLANATION OF PLATE VI.

The outlines of the entire insect are 4 times natural size; the others are all greatly enlarged.

1. *Hygronemobius alleni* (Morse). Miami, Florida, Female. Dorsal outline.

1A. Same. Lateral outline of caudal tibia, internal.

1B. Same. Lateral outline of ovipositor.

2. *Hygronemobius liura* new species. *Type*. Male. Dorsal outline.

2A. Same. Lateral outline of caudal tibia, external.

2B. Same. Lateral outline of caudal tibia, internal.

2C. *Hygronemobius liura* new species. *Allotype*. Female. Dorsal outline.

2D. Same. Lateral outline of ovipositor.

3. *Hygronemobius dissimilis* (Saussure). Petropolis, Brazil. Male. Dorsal outline.

3A. Same. Lateral outline of caudal tibia, internal.

4. *Hygronemobius albipalpus* (Saussure). Igarapé Assu, Brazil. Male. Dorsal outline.

4A. Same. Lateral outline of caudal tibia, internal.

4B. *Hygronemobius albipalpus* (Saussure). Igarapé Assu, Brazil. Female. Lateral outline of ovipositor.

8. The number of spines of the dorsal margins of the caudal femora is 3 and 3, absolutely constant in the species of the genus examined, as are 4 and 4 in the species of *Nemobius*. Saussure has given in the original description of this species 3 and 4 of these spines; to have obtained this result he must have counted the dorso-internal spur. These spines in the material here studied are not as nearly opposite as in *Nemobius* and are as a result distinctly alternating.

9. This measurement is necessary but one of the most difficult to judge, owing to the necessity of estimating the points on the curve of the pronotum where the dorsum runs into the lateral lobes.

